APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,234	09/25/2003	Joseph Stanley Czyszczewski	BLD920030023US1	8711

45211 7590 08/24/2007		EXAMINER
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2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/672,234	CZYSZCZEWSKI ET AL.
Office Action Summary	Examiner	Art Unit	
	Peter L. Cheng	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*25 September 2003*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5,6,7,10,11,12,15,16,17,20* is/are rejected.

7)☒ Claim(s) *3,4,8,9,13,14,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>*25 September 2003*</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *9/25/2003*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Drawings

1.   Figures 1, 2, 3 and 5 should be designated by a legend such as **--Prior Art--**
because only that which is old is illustrated. See MPEP § 608.02(g). Corrected
drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action
to avoid abandonment of the application. The replacement sheet(s) should be labeled
"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct
any portion of the drawing figures. If the changes are not accepted by the examiner, the
applicant will be notified and informed of any required corrective action in the next Office
action. The objection to the drawings will not be held in abeyance.

2.   New corrected drawings in compliance with 37 CFR 1.121(d) are required in this
application because the drawings are not presented in a clear, easily discernible
manner. For example, reference number **305B** and figure label **Red CCD Array** shown
in **Figure 3** overlap while figure label **Red Filter** and reference number **305A** appear to
point to the same object. Applicant is advised to employ the services of a competent
patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no
longer prepares new drawings. The corrected drawings are required in reply to the
Office action to avoid abandonment of the application. The requirement for corrected
drawings will not be held in abeyance.

3.   The drawings are objected to because:

- **Figures 1, 2, 3, 4, 5, 6A, 6B:** for clarity, it is suggested that the cursive script, hand-drawn labels be either "typed" or "printed";

- **Fig. 5:** "**pixel position**" is misspelled in the chart title; the first "**o**" in "**position**" is missing;

- **Figs. 5, 6A:** for clarity, it is suggested that figure labels and reference numbers should not be placed on either the coordinate axes or data curves (or lines);

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application

must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Specification

4.   The disclosure is objected to because of the following informalities:

- **Page 4, line 17:** it is assumed that applicant either intended to cite **gray**
  values versus *pixel position*, or as with the description of Fig. 6A in lines 14
  – 16, applicant intended to delete the word **versus**;

- **Page 12, line 22** ("calculating" should be "calculated");

Appropriate correction is required.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

6.   Claims 6 – 10 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. Claims 6 - 10 are drawn to functional

descriptive material NOT claimed as residing on a computer-readable medium.   MPEP

2106.IV.B.1(a) (Functional Descriptive Material) states:

> "Data structures not claimed as embodied in a computer-readable medium are descriptive
> material per se and are not statutory because they are not capable of causing functional change
> in the computer."

> "Such claimed data structures do not define any structural or functional interrelationships between
> the data structure and other claimed aspects of the invention which permit the data structure's
> functionality to be realized."

> "In contrast, a claimed computer-readable medium encoded with the data structure defines
> structural and functional interrelationships between the data structure and the computer software
> and hardware components which permit the data structure's functionality to be realized, and is
> thus statutory."

Claims 6 - 10, while defining a **computer program product embodied in a**

machine readable medium, do not define a "computer-readable medium" and are,

therefore, non-statutory for that reason.

Therefore, it is suggested that the **computer program product embodied in a**

machine readable medium for detecting ... be replaced with **computer program**

product residing on computer-readable medium and including computer-

executable instructions for detecting ...

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed
> publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8.   Claims 1, 6 are rejected under 35 U.S.C. 102(a) as being anticipated by

NABESHIMA [US Patent 6,587,224 B1].

As for claims 1 and 6, NABESHIMA teaches a method for detecting and compensating

for color misregistration comprising the steps of:

scanning *one of* a black/white edge *and* a solid color edge on a target

[NABESHIMA teaches a method to correct chromatic aberration by scanning a

correction chart; see **Fig. 3** chromatic aberration correction chart **17**. "Each of

black solid patches 17a – 17c is a black rectangular pattern"; **col. 5, lines 17 –**

18. NABESHIMA also teaches that a color other than black may be used. "For

example, a solid patch of gray in color can be drawn on a white color plate"; **col.**

5, lines 32 – 33];

generating a curve of gray values versus pixel spatial position for each

color channel on *one of* said black/white edge *and* said solid color edge

scanned

[**Fig. 5** illustrates three "gray value" curves for the red, green and blue color

channels. "In the graph of Fig. 5, the CCD output is plotted along the vertical

axis and the CCD pixels are plotted along the horizontal axis"; **col. 5, lines 62 –**

64. "When the CCD output value of all the R, G, and B outputs is 255, "white" is

represented. When all the CCD output values of the R, G, and B outputs is 0,

"black" is represented"; **col. 5, line 66 – col. 6, line 2];**

calculating a misregistration error by calculating an offset between color

channels

[NABESHIMA teaches that the misregistration error (ΔR or ΔB) is calculated as a

difference between "edge pixels" of two color channels. "The edge pixel (Re, Ge,

Be) for each output of R, G, and B described with reference to Fig. 5 is obtained

by edge determination circuit 38"; **col. 7, lines 5 – 7.** "The chromatic aberration

correction coefficient corresponds to the distance ΔR between edge pixels Ge

and Re, and distance ΔB between edge pixels Ge and Be"; **col. 7, lines 10 - 13];**

and calibrating a unit using said calculated misregistration error

[NABESHIMA teaches that this "misregistration error" (i.e., the chromatic

aberration correction coefficient) is used to correct the chromatic aberration. This

correction process is illustrated in **Fig. 8.** When the error value is equal to 0

(**step S21**), with respect to either chromatic aberration correction coefficient ΔR

or ΔB, "the process ends without effecting chromatic aberration correction since

chromatic aberration does not occur"; **col. 7, lines 24 – 27.** Otherwise, if the

error value is a positive value, "contraction interpolation" (**step S23**) is performed,

and if the error value is negative, "enlargement interpolation" (**step S24**) is

performed; **col. 7, lines 29 - 34].**

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

    1.   Determining the scope and contents of the prior art.
    2.   Ascertaining the differences between the prior art and the claims at issue.
    3.   Resolving the level of ordinary skill in the pertinent art.
    4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

11.   Claims 2, 7, 12, and 17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over **NABESHIMA [US Patent 6,587,224 B1]**.

Regarding claims 2, 7, 12, and 17, NABESHIMA does not specifically teach:

storing said misregistration error.

However, NABESHIMA does teach that the "correction coefficient can be determined at

the time of the adjustment stage prior to shipment of the imaging reading apparatus"

and used at a later time; **col. 9, lines 58 – 60.** Therefore, it would have been obvious to

one of ordinary skill in the art to "store the misregistration error" (i.e., the chromatic

aberration correction coefficients ΔR, ΔB, and the positions of edge pixels Re, Ge and

Be) as calibration values so that the misregistration error could be corrected when the

image reading apparatus was eventually used by an end-user.

12.   Claims 5, 10, 11, 15, 16 and 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over **NABESHIMA [US Patent 6,587,224 B1]** in view of well-known prior

art.

Regarding claims 5, 10, 15, and 20, NABESHIMA teaches, wherein said step of

calculating said misregistration error comprises the steps of:

> **determining a lateral shift required to align one or more of said plurality of**
>
> **data points for said first and said second color channel**
>
> [Either the red color channel or blue color channel is shifted relative to the green
>
> color channel. This misalignment is illustrated in **Fig. 9.** As previously noted for
>
> claim 1, this "lateral shift determination" is referred to as either "contraction

interpolation" or "enlargement interpolation". These two processes are further explained with reference to **Fig. 9** and the specification starting from **col. 7, line 46** and ending at **col. 8, line 5.**

From a circuit perspective, the determination of the lateral shift and subsequent correction are effected by components "line RAM" **36**, "edge determination circuit" **38**, CPU **40**, and "chromatic aberration correction circuit" **42** as shown in **Fig. 2].**

However, NABESHIMA does not specifically teach

fitting a second order curve to a plurality of data points on said curve of gray values for a first and a second color channel;

Curve fitting, as well as, extrapolation and interpolation are standard techniques for determining a mathematical relation between variables when only a few data points are available. Official Notice is taken that both the concept and the advantages of fitting a curve to a plurality of data points are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to fit a plurality of gray value data points for a first and a second color channel to either a second or higher order curve so that the lateral shift between color channels could be determined more accurately.

Regarding claim 11, NABESHIMA further teaches a system, comprising:

a processor [Fig. 2 CPU 40] ~~coupled to said memory~~, wherein said

processor, responsive to said computer program, comprises:

circuitry operable for generating a curve of gray values versus pixel

spatial position for each color channel on *one of* **a black/white edge**

and a solid color edge scanned on a target

[Fig. 5 illustrates three "gray value" curves for the red, green and blue

color channels. "In the graph of Fig. 5, the CCD output is plotted along the

vertical axis and the CCD pixels are plotted along the horizontal axis"; **col.**

5, lines 62 – 64. "When the CCD output value of all the R, G, and B

outputs is 255, "white" is represented. When all the CCD output values of

the R, G, and B outputs is 0, "black" is represented"; **col. 5, line 66 – col.**

6, line 2];

circuitry operable for calculating a misregistration error by

calculating an offset between color channels

[NABESHIMA teaches that the misregistration error (ΔR or ΔB) is

calculated as a difference between "edge pixels" of two color channels.

"The edge pixel (Re, Ge, Be) for each output of R, G, and B described

with reference to Fig. 5 is obtained by edge determination circuit 38"; **col.**

7, lines 5 – 7. "The chromatic aberration correction coefficient

corresponds to the distance ΔR between edge pixels Ge and Re, and

distance ΔB between edge pixels Ge and Be"; **col. 7, lines 10 - 13];**

and circuitry operable for calibrating a unit using said calculated

misregistration error

[NABESHIMA teaches that this "misregistration error" (i.e., the chromatic

aberration correction coefficient) is used to correct the chromatic

aberration. This correction process is illustrated in **Fig. 8.** When the error

value is equal to 0 (**step S21**), with respect to either chromatic aberration

correction coefficient ΔR or ΔB, "the process ends without effecting

chromatic aberration correction since chromatic aberration does not

occur"; **col. 7, lines 24 – 27.** Otherwise, if the error value is a positive

value, "contraction interpolation" (**step S23**) is performed, and if the error

value is negative, "enlargement interpolation" (**step S24**) is performed;

col. 7, lines 29 - 34].

However, NABESHIMA does not specifically teach

a memory, coupled to the processor, **operable for storing a computer**

program for detecting and compensating for color misregistration;

Official Notice is taken that both the concept and the advantages of including a memory

operable for storing a computer program for detecting and compensating for color

misregistration are well known and expected in the art. It would have been obvious to

one of ordinary skill in the art at the time the invention was made to include a memory,

coupled to the processor, so that the CPU could fetch and execute program instructions

from such memory.

Regarding claim 16, NABESHIMA further teaches a scanner, comprising:

    a reading unit [Fig. 1 an "image reading apparatus"; **col. 3, line 51],**

    wherein said reading unit comprises:

    an illumination source configured to emit light onto a surface

    [Fig. 1 lamp 5; col. 3, line 53];

    and a plurality of charge coupled device arrays configured to store electric

    charge from light reflected from said surface

    [Fig. 1 CCD linear sensor **11; col. 3, line 55];**

    a controller coupled to said reading unit, wherein said controller is

    configured to sequentially activate said plurality of charge coupled device

    arrays

    [Fig. 1 data processing unit **13; col. 3, line 55;** also, see **Fig. 2** data processing

    unit **13],**

wherein said controller is further configured to output said electrical

charge stored in said plurality of charge coupled device arrays as digital

signals

[**Fig. 2** gain control amplifier **30** and analog-to-digital (A/D) converter **32; col. 4,**

lines 45 - 48],

wherein said controller comprises:

a processor ~~coupled to said memory~~

[**Fig. 2** CPU **40**],

wherein said processor, ~~responsive to said computer program~~**, comprises:**

circuitry operable for generating a curve of gray values versus pixel spatial

position for each color channel on *one of* **a black/white edge and a solid**

color edge scanned on a target

[**Fig. 5** illustrates three "gray value" curves for the red, green and blue color

channels. "In the graph of Fig. 5, the CCD output is plotted along the vertical

axis and the CCD pixels are plotted along the horizontal axis"; **col. 5, lines 62 –**

64. "When the CCD output value of all the R, G, and B outputs is 255, "white" is

represented. When all the CCD output values of the R, G, and B outputs is 0,

"black" is represented"; **col. 5, line 66 – col. 6, line 2**];

circuitry operable for calculating a misregistration error by calculating an

offset between color channels

[NABESHIMA teaches that the misregistration error (ΔR or ΔB) is calculated as a

difference between "edge pixels" of two color channels. "The edge pixel (Re, Ge,

Be) for each output of R, G, and B described with reference to Fig. 5 is obtained

by edge determination circuit 38"; **col. 7, lines 5 – 7.** "The chromatic aberration

correction coefficient corresponds to the distance ΔR between edge pixels Ge

and Re, and distance ΔB between edge pixels Ge and Be"; **col. 7, lines 10 - 13];**

and circuitry operable for calibrating said scanner using said

calculated misregistration error

[NABESHIMA teaches that this "misregistration error" (i.e., the chromatic

aberration correction coefficient) is used to correct the chromatic aberration. This

correction process is illustrated in **Fig. 8.** When the error value is equal to 0

(step S21), with respect to either chromatic aberration correction coefficient ΔR

or ΔB, "the process ends without effecting chromatic aberration correction since

chromatic aberration does not occur"; **col. 7, lines 24 – 27.** Otherwise, if the

error value is a positive value, "contraction interpolation" **(step S23)** is performed,

and if the error value is negative, "enlargement interpolation" **(step S24)** is

performed; **col. 7, lines 29 - 34].**

However, NABESHIMA does not specifically teach

a memory, as part of the controller, **operable for storing a computer program**

for detecting and compensating for color misregistration;

Official Notice is taken that both the concept and the advantages of including a memory

operable for storing a computer program for detecting and compensating for color

misregistration are well known and expected in the art. It would have been obvious to

one of ordinary skill in the art at the time the invention was made to include a memory,

coupled to the processor, so that the CPU could fetch and execute program instructions

from such memory.

Allowable Subject Matter

13.   Claims 3, 4, 8, 9, 13, 14, 18, 19 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all

of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Peter L. Cheng whose telephone number is 571-270-

3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

plc

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SUPERVISORY PATENT EXAMINER